

Biological Activities V-8

9 Nov 55

June

Date	log	Type Tow	Fath. Depth
9 Nov		¹⁰²⁵ Box-1	675
10 Nov		¹⁹⁵⁸ Box-2	160
10 Nov		¹⁹⁵⁸ PLK-1	250
12 Nov		⁰⁹¹⁸ EBTOL-1	2710
13 Nov		PLK-2	162
14 Nov		lost net EBTOL-2	2630
17 Nov		¹⁸⁰⁰ PLK-3	250
23 Nov	185.52	²¹⁰² PLK-4	250
25 Nov	297.94	¹⁹⁰³ PLK-5	250
26 Nov	331.61	⁰¹³¹ PLK-6	250
26 Nov	399.20	⁰⁹²⁵ PLK-7	<u>1000?</u>
27 Nov	450.-	⁰²¹⁵ PLK-8	250
27 Nov	515.11	¹⁸²⁶ PLK-9	250
28 Nov	688.24	¹⁶³⁴ PLK-10	250
29 Nov		²⁴²⁰ PLK-11	250
29 Nov	806.26	¹⁷⁰⁵ PLK-12	250
30 Nov	974.06	²⁰³⁰ PLK-13	250
1 Dec	core 8	EBTOL-2	1865
1 Dec	1089.10	¹¹⁰⁰ PLK-14	250
2 Dec	outside canal	⁰⁶³⁰ PLK-15	surface
6 Dec	1231.64	⁰⁹³³ Box-3	34
7 Dec	1405.20	⁰⁶³⁰ PLK-16	250
8 Dec	1524.39	⁰⁷²⁵ PLK-17	250
9 Dec	1660.77	¹²²³ PLK-18	250
9 Dec	1660.77	¹⁸⁴⁰ PLK-19	250
10 Dec	1775.33	¹⁵⁵⁵ PLK-20	250
10 Dec	1775.33	⁰⁹⁵⁵ Box-4	680

Date	log	Type Tow	Fath. Depth
13 Dec	2115.41	²⁰⁷⁰ PLK-21	250
14 Dec	2213.58	⁰⁸⁴⁰ PLK-22	250
15 Dec	2407.57	¹²²⁰ EBTOL-3	634
17 Dec	2578.68	²⁴⁰⁷ PLK-23	250
17 Dec	2645.7	¹³¹⁰ PLK-24	250
18 Dec	2791.40	¹⁹³⁰ PLK-25	250
20 Dec	2971.96	⁰⁹⁰⁰ PLK-26	250
20 Dec	2972.55	¹²⁵⁵ PLK-27	1000 *
21 Dec	3085.89	¹²⁵⁰ PLK-28	250
22 Dec	3162.47	⁰⁶³⁵ PLK-29	1000 *
23 Dec	3329.07	¹⁴³⁰ PLK-30	250
23 Dec	3373.13	²³¹⁶ PLK-31	250
24 Dec	3434.88	¹²¹⁹ PLK-32	250
24 Dec	3497.09	²³²³ PLK-33	250
25 Dec	3551.00	¹²⁰⁰ PLK-34	500 *
26 Dec	3669.13	⁰⁹⁵⁵ PLK-35	437 *
27 Dec	3755.58	⁰¹⁴⁵ PLK-36	1000 *
31 Dec	3881.35	⁰⁴¹⁰ PLK-37	250
1 Jan 56	4031.73	¹⁴⁵⁴ PLK-38	250
2 Jan 56	4082.51	⁰¹⁰⁰ PLK-39	250
3 Jan 56	4082.51	¹⁹²² PLK-40	250
5 Jan 56	4461.68	⁰⁹³⁶ PLK-41	250
7 Jan 56	4714.15	¹⁸⁴⁹ PLK-42	250
8 Jan 56	4754.56	⁰⁴⁴⁰ PLK-43	500
9 Jan 56	4811.58	²⁴⁰¹ PLK-44	250

Date	log	Type tow	Fath depth
9 Nov		Box-1	675
10 Nov		Box-2	160
10 Nov		PLK-1	250
12 Nov		EBTUC-1	2710
13 Nov		PLK-2	162
14 Nov		EBTUC-2	2630
17 Nov		PLK-3	250
23 Nov	185.52	PLK-4	250
25 Nov	297.94	PLK-5	250
26 Nov	331.61	PLK-6	250
26 Nov	399.20	PLK-7	1000?
27 Nov	450.	PLK-8	250
27 Nov	515.11	PLK-9	250
28 Nov	688.24	PLK-10	250
29 Nov		PLK-11	250
29 Nov	806.26	PLK-12	250
30 Nov	974.06	PLK-13	250
1 Dec	core 8	EBTUC-3	1865
1 Dec	1089.10	PLK-14	250
2 Dec	outside canal	PLK-15	SURFACE
6 Dec	1231.64	Box-3	34
7 Dec	1405.20	PLK-16	250
8 Dec	1524.34	PLK-17	250
9 Dec	1660.47	PLK-18	250
9 Dec	1660.77	PLK-19	250
10 Dec	1775.33	PLK-20	250
10 Dec	1775.33	Box-4	680

date	log	Type Tow	Fath Depth
13 Dec	2115.41	PLK-21	250
14 Dec	2213.58	PLK-22	250
15 Dec	2407.57	EBTUC-4	634
17 Dec	2578.68	PLK-23	250
17 Dec	2645.7-	PLK-24	250
18 Dec	2791.40	PLK-25	250
20 Dec	2971.96	PLK-26	250
20 Dec	2972.55	PLK-27	1000
21 Dec	3085.89	PLK-28	250
22 Dec	3162.47	PLK-29	1000
23 Dec	3329.07	PLK-30	250
23 Dec	3373.13	PLK-31	250
24 Dec	3434.88	PLK-32	250
24 Dec	3497.09	PLK-33	250
25 Dec	3551.00	PLK-34	500
26 Dec	3669.13	PLK-35	437
27 Dec	off Cuba	PLK-36	1000

V-8

1955

Name.....No.....Experiment No.....

Instructor.....Date.....

CUB 53

Date	Time	Lat. N	Long W	Tow	Depth	Log		
9 Nov.	¹⁰¹⁰ ✓ 0225	22 ✓ 38.5	73 40.3	Box 1	675			
10 Nov.	²⁰⁰¹ ✓ 1958	20 ✓ 01.4	70 39.9	PLK 1.	250			
12 Nov.	⁰⁸¹⁸ ✓ 0918	20 ✓ 32.2	68 28.1	EBTOC1	2710			
13 Nov.	★			PLK 2	162			
17 Nov.	¹⁷²⁴ ✓ 1800	17 ✓ 05.0	68 59.0	PLK 3L	250			
23 Nov.	²⁰³⁷ ✓ 2102	16 ✓ 48.2	70 19.0	PLK 4L	250			
25 Nov.	²⁰¹⁶ ✓ 1903	17 ✓ 05.8	71 37.0	PLK 5L	250			
26 Nov.	0125 0131	16 ✓ 36.2	72 09.6	PLK 6L	250			
26 Nov.	0900 0925	15 ✓ 45.4	72 45.0	PLK 7L	1000			
27 Nov.	0200 0215	15 ✓ 09.5	73 25.8	PLK 8L	250			
27 Nov.	1902 1826	14 ✓ 22.6	74 11.4	PLK 9L	250			
28 Nov.	1627 1634	11 ✓ 54.7	75 42.6	PLK 10L	250			
29 Nov.	^{20 Nov 0113} ✓ 2420	11 ✓ 32.6	75 54.5	PLK 11L	250			
29 Nov.	1623 1705	11 ✓ 33.9	75 43.3	PLK 12L	250			
30 Nov.	2018 2030	12 ✓ 23.3	77 45.5	PLK 13L	250			
1 Dec.	1202 1340	11 ✓ 16.6	79 14.4	EBTOC 2	1865			
1 Dec.	1057 1100	11 ✓ 16.8	79 13.1	PLK 14L	250			
2 Dec.	✓ 0530	9 ✓ 34.4	79 46.4	PLK 15L	Surface	★		
6 Dec.	0850 0933	9 ✓ 24.8	79 52.2	Box 2	34			
7 Dec.	0619 0630	11 ✓ 23.2	77 37.1	PLK 16L	250			
8 Dec.	0649 0725	12 ✓ 57.2	77 22.0	PLK 17L	250			
9 Dec.	1200 1223	14 ✓ 46.0	78 09.3	PLK 18L	250			
9 Dec.	1806 1840	14 ✓ 46.0	78 12.0	PLK 19L	250			
10 Dec.	1545 1555	16 ✓ 16.7	79 13.9	PLK 20L	250			
10 Dec.	0950 0955	16 ✓ 10.5	79 09.7	Box 3	680			
13 Dec.	2030 2030	17 ✓ 28.3	76 21.8	PLK 21L	250			
14 Dec.	0831 0840	16 ✓ 05.2	76 11.3	PLK 22L	250			
15 Dec.	1215 1220	16 ✓ 59.1	79 07.9	EBTOC 3	634			
17 Dec.	2340 2407	18 ✓ 05.9	80 23.0	PLK 23L	250			
17 Dec.	1200 1210	18 ✓ 13.1	79 33.9	PLK 24L	250			
18 Dec.	1935 1930	18 ✓ 42.8	79 43.4	PLK 25L	250			
20 Dec.	0850 0900	19 ✓ 04.0	80 47.4	PLK 26L	250			
20 Dec.	1200 1255	19 ✓ 04.0	80 48.0	PLK 27L	1000	✓		
21 Dec.	1840 1250	19 ✓ 13.1	81 23.7	PLK 28L	250			
22 Dec.	0600 0635	19 ✓ 46.9	80 40.7	PLK 29L	1000			
23 Dec.	1200 1430	19 ✓ 13.0	79. 26.2	PLK 30L	250			
23 Dec.	2312 2316	19 ✓ 13.0	78 54.7	PLK 31L	250	✓		
24 Dec.	1200 1219	19 ✓ 10.6	77 56.2	PLK 32L	250			
24 Dec.	²³¹³ ✓ 2323	19 ✓ 23.3	77 14.9	PLK 33L	250	✓		
25 Dec.	1200 1200	19 ✓ 14.0	76 51.2	PLK 34L	500			
26 Dec.	0600 0955	19 ✓ 37.5	76 18.0	PLK 35L	437			
27 Dec.	0148 0145	19 ✓ 49.6	75 36.8	PLK 36L	1000			
31 Dec.	⁰³⁵² ✓ 0410	18 ✓ 24.0	75 11.0	PLK 37L	250			
1 Jan.	1200 1454	17 ✓ 33.9	73 22.1	PLK 38	250			

29th
0055

11 53.6

28 Nov 2420

05 42.1

date	time	Lat	N	Long	W	Tow	Depth	Log
2 Jan 0150	0100	17	✓ 31.5	72	31.6	PLK 39 ✓	250	
3 Jan 1742	✓ 1922	17	✓ 46.0	70	05.0	PLK 40 ✓	250	
5 Jan 0830	✓ 0936	19	✓ 10.9	67	06.0	PLK 41 ✓	250	
7 Jan 1833	✓ 1849	20	✓ 32.5	64	52.0	PLK 42 ✓	250	
8 Jan 0425	✓ 0440	19	57.1	65	07.5	PLK 43 ✓	300	
9 Jan ★	2401					PLK 44	250	

V 8 - Plankton Samples 1/2 m

9/27/56

Recalculation of Vol. H₂O filtered A. Bé

#44 Av. W₄ = 30° (= average wire length) (AWL)
 Graph shows 8.5 m³/min. at 30° W₄ (G)
 length of tow 36 mins. (LT)
 Vol. H₂O filtered (VHF) = 36 × 8.5 = 320 m³ (VHF)
 d = cos 37° × 421 = 340 m

#43 AWL = 10°
 G = 5.4 m³/min at 10°
 LT = 55 min.
 VHF = 55 × 5.4 = 296 m³
 d = cos 11° × 880 = 860 m
 480 Fm = 880 m.

#42 AWL = 24°
 G = 7.7 m³/min at 24°
 LT = 80 min.
 VHF = 80 × 7.7 = 616 m³
 d = cos 24° × 421 = 385 m

#41 AWL = 18°
 G = ~~153 min~~ 6.7 m³/min.
 LT = 153 min.
 VHF = 153 × 6.7 = 1020 m³
 d = cos 18° × 421 = 400 m

#40 AWL = 40°
 G = 10.0 m³/min
 LT = 43 min
 VHF = 10.0 × 43 = 430 m³
 d = cos 40° × 421 = 325 m

#39 $AWL = 34^\circ$
 $G = 9.1 \text{ m}^3/\text{min}$
 $LT = 31 \text{ min}$
 $VHF = 31 \times 9.1 = \underline{282 \text{ m}^3}$

$$d = \cos 34^\circ \times 421 = \underline{350 \text{ m}}$$

#38 $AWL = 39^\circ$
 $G = 9.8 \text{ m}^3/\text{min}$
 $LT = 37 \text{ min.}$
 $VHF = 37 \times 9.8 = \underline{363 \text{ m}^3}$

$$d = \cos 39^\circ \times 421 = \underline{330 \text{ m}}$$

#37 $AWL = 25^\circ$
 $G = 7.8 \text{ m}^3/\text{min.}$
 $LT = 22 \text{ min}$
 $VHF = 22 \times 7.8 = \underline{171 \text{ m}^3}$

$$d = \cos 25^\circ \times 421 = \underline{385 \text{ m}}$$

#36 $AWL = 0^\circ$
 $d = \underline{1830 \text{ m}}$
 $\text{Max. depth } 1830 \text{ m.} \therefore \text{total tow} = 2 \times 1830 \text{ m} = 3660 \text{ m}$
 $VHF = 3660 \times \frac{1}{4} \text{ m}^2 (\text{circumference of } 1/2 \text{ m. net}) = \underline{915 \text{ m}^3}$

#35 $AWL = 31^\circ$
 $G = 8.6 \text{ m}^3/\text{min}$
 $LT = 65 \text{ min.}$
 $VHF = 65 \times 8.6 = \underline{560 \text{ m}^3}$

$$d = \cos 31^\circ \times 800 = \underline{690 \text{ m.}}$$

#34 $AWL = 43^\circ$
 $G = 10.2 \text{ m}^3/\text{min.}$
 $LT = 143 \text{ min}$
 $VHF = 143 \times 10.2 = \underline{1460 \text{ m}^3}$

$$d = \cos 43^\circ \times 915 = \underline{670 \text{ m}}$$

#33 $AWL = 31^\circ$

$G = 8.6 \text{ m}^3/\text{min}$

$LT = 16 \text{ min}$

$VHF = 16 \times 8.6 = \underline{\underline{138 \text{ m}^3}}$

$d = \cos 31 \times 421 = \underline{\underline{360 \text{ m}}}$

#32 $AWL = 18^\circ$

$G = 6.7 \text{ m}^3/\text{min}$

$LT = 74 \text{ min}$

$VHF = 74 \times 6.7 = \underline{\underline{495 \text{ m}^3}}$

$d = \cos 18 \times 421 = \underline{\underline{400 \text{ m}}}$

#31 $AWL = 20^\circ$

$G = 7 \text{ m}^3/\text{min}$

$LT = 31 \text{ min}$

$VHF = 31 \times 7 = \underline{\underline{217 \text{ m}^3}}$

$d = \cos 20 \times 421 = \underline{\underline{400 \text{ m}}}$

#30 $AWL = 17^\circ$

$G = 6.5 \text{ m}^3/\text{min}$

$LT = 40 \text{ min}$

$VHF = 40 \times 6.5 = \underline{\underline{260 \text{ m}^3}}$

$d = \cos 17 \times 421 = \underline{\underline{400 \text{ m}}}$

#29 $AWL = 40^\circ$

$G = 10 \text{ m}^3/\text{min}$

$LT = 382 \text{ min}$

$VHF = 382 \times 10 = \underline{\underline{3820 \text{ m}^3}}$

$d = \cos 40 \times 1790 = \underline{\underline{1400 \text{ m}}}$

#28 $AWL = 15^\circ$

$G = 6.2 \text{ m}^3/\text{min}$

$LT = 29 \text{ min}$

$VHF = 29 \times 6.2 = \underline{\underline{180 \text{ m}^3}}$

$d = \cos 15 \times 421 = \underline{\underline{410 \text{ m}}}$

#27 $AWL = 45^\circ$
 $G = 10.4 \text{ m}^3/\text{min}$
 $LT = 237$
 $VHF = 237 \times 10.4 = \underline{2460 \text{ m}^3}$

$$d = \cos 45^\circ \times \frac{1790}{421} = \underline{1270 \text{ m}}$$

#26 $AWL = 30^\circ$
 $G = 8.5$
 $LT = 34$
 $VHF = 34 \times 8.5 = \underline{289 \text{ m}^3}$

$$d = \cos 30^\circ \times 421 = \underline{365 \text{ m}}$$

#25 $AWL = 25^\circ$
 $G = 7.8$
 $LT = 36$
 $VHF = \cancel{280} 36 \times 7.8 = \underline{280 \text{ m}^3}$

$$d = \cos 25^\circ \times 421 = \underline{380 \text{ m}}$$

#24 $AWL = 24^\circ$
 $G = 7.7$
 $LT = 40$
 $VHF = 40 \times 7.7 = \underline{308 \text{ m}^3}$

$$d = \cos 24^\circ \times 421 = \underline{380 \text{ m}}$$

#23 $AWL = 25^\circ$
 $G = 7.8$
 $LT = 28$
 $VHF = 28 \times 7.8 = \underline{218 \text{ m}^3}$

$$d = \cos 25^\circ \times 421 = \underline{380 \text{ m}}$$

#22 $AWL = 28^\circ$
 $G = 8.3$
 $LT = 24$
 $VHF = 24 \times 8.3 = \underline{199 \text{ m}^3}$

$$d = \cos 28^\circ \times 421 = \underline{370 \text{ m}}$$

$$\#21 \quad \text{AWL} = 18^\circ$$

$$G = 6.7$$

$$LT = 91$$

$$\text{VHF} = 91 \times 6.7 = \underline{\underline{610 \text{ m}^3}}$$

$$d = \cos 18^\circ \times 421 = \underline{\underline{400 \text{ m}}}$$

$$\#20 \quad \text{AWL} = 45^\circ$$

$$G = 10.4$$

$$LT = 49$$

$$\text{VHF} = 49 \times 10.4 = \underline{\underline{510 \text{ m}^3}}$$

$$d = \cos 45^\circ \times 421 = \underline{\underline{300 \text{ m}}}$$

$$\#19 \quad \text{AWL} = 27^\circ$$

$$G = 8.2$$

$$LT = 45$$

$$\text{VHF} = 45 \times 8.2 = \underline{\underline{368 \text{ m}^3}}$$

$$d = \cos 27^\circ \times 421 = \underline{\underline{375 \text{ m}}}$$

$$\#18 \quad \text{AWL} = 30^\circ$$

$$G = 8.5$$

$$LT = 33$$

$$\text{VHF} = 33 \times 8.5 = \underline{\underline{280 \text{ m}^3}}$$

$$d = \cos 30^\circ \times 421 = \underline{\underline{365 \text{ m}}}$$

$$\#17 \quad \text{AWL} = 25^\circ$$

$$G = 7.8$$

$$LT = 29 \text{ min}$$

$$\text{VHF} = 29 \times 7.8 = \underline{\underline{226 \text{ m}^3}}$$

$$d = \cos 25^\circ \times 421 = \underline{\underline{380 \text{ m}}}$$

$$\#16 \quad \text{AWL} = 20^\circ$$

$$G = 7.0$$

$$LT = 30$$

$$\text{VHF} = \underline{\underline{210 \text{ m}^3}}$$

$$d = \cos 20^\circ \times 421 = \underline{\underline{400 \text{ m}}}$$

#15 — surface —

#14 $AWL = 16^\circ$

$G = 6.4$

$LT = 27$

$VHF = 27 \times 6.4 = \underline{\underline{173 m^3}}$

$d = \cos 16 \times 421 = \underline{\underline{405 m}}$

#13 $AWL = 22^\circ$

$G = 7.3$

$LT = 28$

$VHF = 28 \times 7.3 = \underline{\underline{204 m^3}}$

$d = \cos 22 \times 421 = \underline{\underline{390 m}}$

#12 $AWL = 27^\circ$

$G = 8.1$

$LT = 26$

$VHF = 26 \times 8.1 = \underline{\underline{210 m^3}}$

$d = \cos 27 \times 421 = \underline{\underline{380 m}}$

#11 $AWL = 26^\circ$

$G = 8.0$

$LT = 26$

$VHF = 26 \times 8.0 = \underline{\underline{168 m^3}}$

$d = \cos 26 \times 421 = \underline{\underline{380 m}}$

#10 $AWL = 30^\circ$

$G = 8.5$

$LT = 27$

$VHF = 27 \times 8.5 = \underline{\underline{229 m^3}}$

$d = \cos 30 \times 421 = \underline{\underline{365 m}}$

#1 $AWL = 20^\circ$ $\frac{1}{2}$ m. tow
 $G = 1.1$
 $LT =$
 $VHF =$

#5 $AWL = 50^\circ$
 $G = 11.6$
 $LT = 26$
 $VHF = 26 \times 11.6 = \underline{301} \text{ m}^3$

#7 $AWL = 15^\circ$
 $G = 6.2$
 $LT = 81 \text{ min}$
 $VHF = 81 \times 6.2 = \underline{500} \text{ m}^3$

#6 $AWL = 38^\circ$
 $G = 9.7$
 $LT = 26$
 $VHF = 26 \times 9.7 = \underline{252} \text{ m}^3$

#5 $AWL = 21^\circ$ No $\frac{1}{2}$ m. net tow
 $G = 8.1$
 $LT =$
 $VHF =$

#4 No $\frac{1}{2}$ m. tow

#3. $AWL = 45^\circ$

$G = 10.4$

$LT = 155$

$VHF = 155 \times 10.4 = \underline{\underline{1620 m^3}}$

#2

$AWL = 40^\circ$ Total tow = $2 \times 300 m = 600 m$.

~~$G =$~~

$VHF = 600 \times \frac{1}{4} m^2 = \underline{\underline{150 m^3}}$

Depth = $\pm 230 m$.

#1

$AWL = \overset{50}{\cancel{69}}^\circ$

$G = 10.8$

$LT = 31$

$VHF = 31 \times 10.8 = \underline{\underline{335 m^3}}$

ALLAN W. H. BE

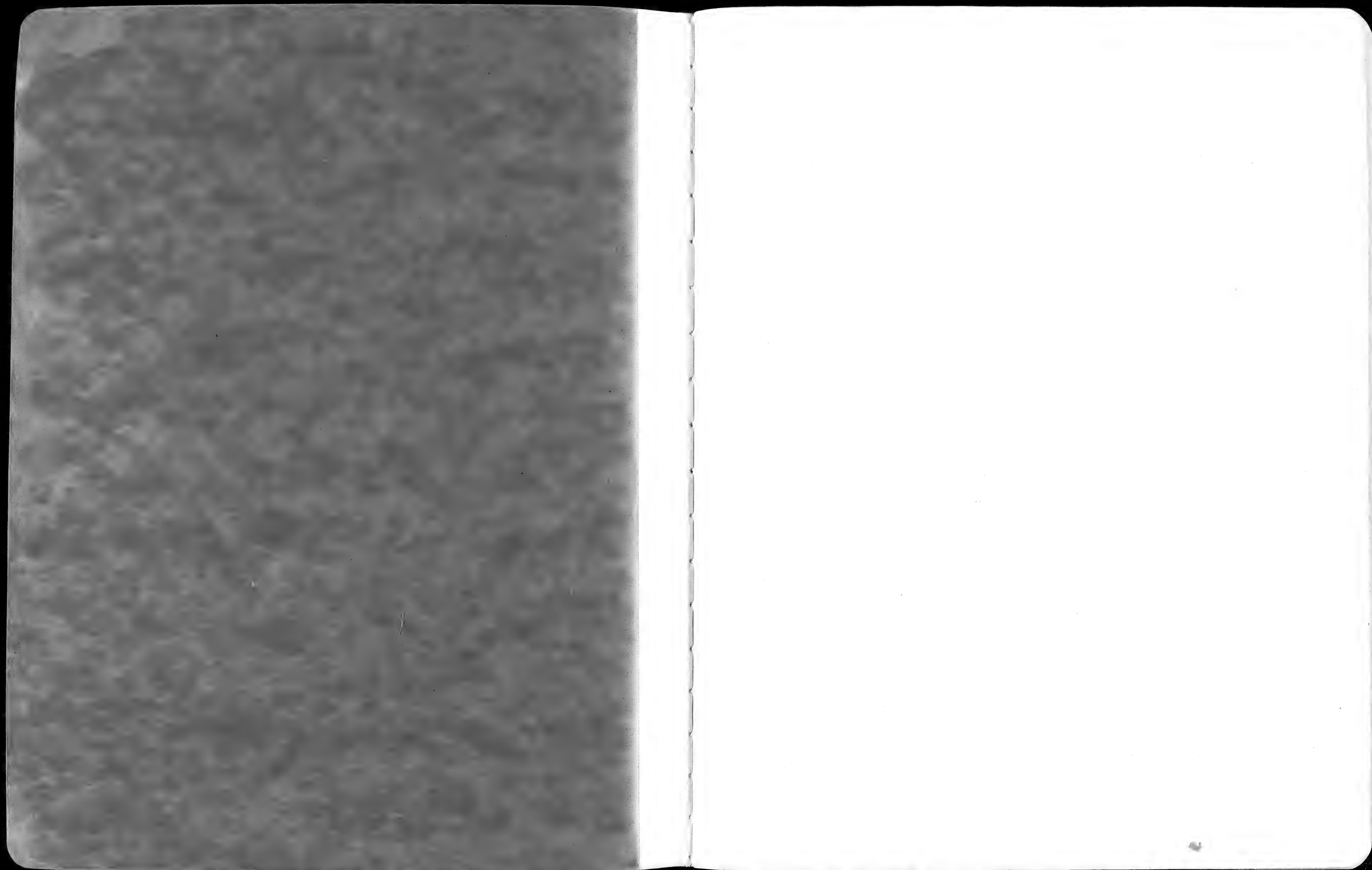
COMPUTATION BOOK

NAME	Number
<i>Edgerton</i>	

Course *Physics*

Used from *Oct* 19*27*, to *Jan* 19*28*

HARVARD COOPERATIVE SOCIETY
1400 Mass. Ave., Cambridge, Mass.
40 Mass. Ave., Cambridge, Mass.



October 30, 1955

Sighted 2 unidentified birds flying together near ship at 1000. Were about size and build of a gull and flew like a gull, but were black all over except throat and breast which were grey. There was a black bird near the neck.

Spent most of day getting C-14 apparatus working.

Brief resume of trip up to Nov. 8, 1955.

Left Toad's Shipyard, Saturday at 1130, one and one half hours late. Spent Sat. cleaning ship's wet lab and securing all scientific gear. Worked on nets, trawls, and the bottom grab on way to Bermuda arriving there Wed. Nov. 2. Loaded expedition all morning and left at 1600 that afternoon. Continued to work on the EBTOC and nets on way to Nassau. Arrived Good Providence Island and Nassau Sunday afternoon Nov. 6. Went ashore Sunday night, spent all Monday checking operation of EBTOC in shallow harbor waters from eight foot skiff. Made $\frac{1}{2}$ M net tow for $\frac{1}{2}$ hour from skiff in harbor down to about 7 meters depth and one EBTOC tow in about 4 meters depth over about 100 yards. The bottom of the harbor had some eel grass beds but was mostly old ground up coral from dredging. The eel grass was short (6" long) and appeared to be in a rich condition as it was covered with marine growth and much of it was brown or yellow. Long spined, purple sea urchin was abundant and short-spined light blue-grey urchin (*Strongylocentrotus*?) common. Club spined urchin rare, brain corals & other types common close to Hog Island shore. A large (6" diameter, 10" high) blue-grey sponge was rare but conspicuous close to Hog Island. The bottom was littered with old Conch shells in many places.

Monday afternoon (1700 Nov. 7) we left Nassau Harbor. Tuesday rigged EBTOC's and spooled new wire onto storage reel.

November 9, 1955, Wednesday

Lat N 22 31.5
Long W 79 40.3

Bot

Tried out bottom grab on hydraulic winch in morning.
Started down at 1025 hit bottom at 1043, wire
out 1280 meters, fathometer depth 675 fathoms.
Grab reached surface at 1100 with a tumbler full of
globigerina ooze - all rest washed out.

Average speed of lowering: 70 Meters per minute

Average speed of raising: 75 meters per minute

Speed of lowering was actually greater, but made several
stops for various adjustments.

675 fathoms $\times 1.828 = 1230$ meters
wire out = 1280 meters or 50 M difference?

In afternoon got all of old hydraulic conductor wire off
hydraulic winch and onto a wooden yard by hand with
much sweating by all.

Ran new conductor cable onto winch after supper.

PIK 1 - Nov 10, 1955

10 Nov 55 Thurs
~~10 Nov 55~~ Friday
 SERIAL NO. 1582-5
 20 14 53 7:17

Bot 2

Tried out bottom grab on side of seamount in about 160 fathoms. Release arm did not spring, but slide did. Apparently the grab hit sidescan and did not trip.

Landed it again in about 500 fathoms with good wire angle. Jaws tripped O.K. but no sample when brought on deck.

In evening made our first plankton tow without too much trouble.

Net tow #1, Vema 8.

1/2 M net in 1958 out 2029 time = 31 min.

1 M net in 2000 out 2026 time = 26 min.

Wire L 60-2002

62-2004

PLK-1 65-2006

63-2008

64-2010 - at depth

60-2012

48-2014 - start up

30-2016 - stopped ascent - muggy in way

38-2018 - resumed ascent

44-2020

40-2022

40-2024

Depth 200M = 109 F

Time 195-2029 = 31 min

2000-2026 = 26 min

Angle 64°

Vol. H₂O Fil. 1M 1400 m³

1/2 M 1260 m³

Ship Vol. 18 ML 1M

16 ML 1/2 M

Time factor 1M 1.0 1/2 M .9

1M DV/1000 = 13 ML

1/2 M DV/1000 = 9 ML

OK

depth
time 0918 —
angle
Vol H₂O Fed
Dipole Vol

November 12, 1955 Saturday

68

Attempted first EBTOC haul today.

stand down 0918 speed 100 M/min.
0929 1000 MWO
0932 changed speed to 115 M/min. WL 27°
0934 " " " 125 M/min. WL 27°
0937 2000 MWO
0948 WL 24° → 0946 3190 MWO
0952 WL 30° → 0950 3500 MWO ma. meter stopped reading
0954 4000 MWO ma. now 0-14 ma.
1002 WL 26°
1005 5000 MWO
1006 WL 30° 5140 MWO, on bottom?
WL 25° 1011 5300 MWO fathometer reading 2710 Fa.
1014 spring tension - 12
1014 start up
1024 let down again
4940 MWO - wire being up and bottom?
4893 " " " " "
1315 → 4764 " " + free
1231 MWO - first break

At 1014 we started up with 5500 MWO after being at depth for less than two minutes. Due to strain on cable wire began to cut into the spool so began to pay out all wire to rewind the spool under tension. As hauling in proceeded, the wind began to operate peculiarly - first evidenced by the whistle of the air relief valve. Later two fuses were blown and the electric motor began to run away but apparently no damage done. At times the air pressure gauges became filled with oil or hydraulic fluid. With 605 MWO a low burst came up and the wind went completely out. It then became apparent that the spindle ends of the wire were moving apart under the strain and jamming on the brake. Lost 600 M of wire brought in by use of handy lifting. EBTOC retrieved O.K. slightly damaged but not serious - meter in good shape, electrical connections still good, battery O.K., record release had gone off and each

$\frac{1}{2}$ M net had about one quart of sediment in cod end.
 Screen nets were essentially empty.
 Dredge bells clamps held very well and did no apparent
 damage to the wire.
 All wire finally on board at 1730.

November 13, 1955 Sunday

SERIAL NO. 246

PLK-2

Took 1/2 M net tow on B.T. while coring. about
300 M wire out with an angle of about 40°. And reached
about 200 meter. Time about 1430.

Rest of day spent working on hydrostat work
and cleaning EBTC mechanisms.

Dep. V. 1411L

19°52'N 075°17.5'W at 1411L

Nov. 14, 1955

 $\frac{1}{2}$ " wire

EBTOC start down 1353, 30 fath./min, wire L 10°

1410 2630 fath. water depth = 4810 meters

1413 600 fath. out

1415 36 fath./min.

1420 800 fath. out

Fathometer depth is 1.5% low, meter wheel is 9.5% low. \therefore add 120, meter wheel wire out to estimate bottom.

$$\begin{array}{r} 2630 \\ + 260 = 10\% \\ \hline 2890 \text{ fath.} \end{array}$$

1442 w L 15° (upper 250 fath.) need 10 more fath. for length.

$$\begin{array}{r} 2890 \\ + 10 \\ \hline 2900 \end{array} \text{ if straight line to bottom}$$

\therefore set out 3000 fath. wire.

$$\begin{array}{r} 2621 \\ 262 \\ \hline 2883 \text{ fath.} \end{array}$$

1445, 35 fath./min, 1700 fath. out

1504 - 40 fath./min descent, 2350 fath. w. o.

1506 - 2621 fath. wire, bottom depth

1513 - 36 fath./min, 2650 fath. out

1524 - 3000 fath. out by meter wheel

1530 - fathometer reading 2673 earlier is correct

1539 - start up

1543 - speed of ascent 12 fath./min.

1553 - spring tension 13-15, oscillating slowly

1600 - fathometer readings 2615 & 2675

1605 - load long from which, ascent stopped, we think a gear is gone

rain squalls during night

Nov. 15, 55 next page

November 15, 1955

- 0915 started hoist after replacing main wind shaft
and grinding down ring gear teeth.
0935 got twists onto wire but one broke at
2731 fathom meter wheel reading
0936 start in, tension 12-15 sec. gently,
winding speed 16 fathoms/min.

- Hot sunny day, calm with gentle breeze
0946 ship took a good roll as tension went down to
8 then up to 16.
1013 16 fathoms/min ascent, 1440 fathoms still out
1045 36 fathoms/min ascent, 900 fathoms still out
1140 all on board, all on EBTDC
gone except the two lead pipes and
the release. 14 fathoms of wire badly
kinked and cut off. Should have had swirl on
EBTDC handle but runner appears should
not have come off - but bracing not
strong enough.

Mar. 16, 1955

Put into way again, Puerto Rico at
1130 for water! Left at 1700. No time for
EBD tow or plankton work.

Hydro winch disassembled and apparently the
ice spindle shaft stretched about 1/2 inch.

November 17, 1955 (Cont. next page)

PLX-3 0-250 fath and out net tow in $\frac{1}{2}$ mile $\frac{1}{2}$ M net in: 1800 out 1855

1 M net in: 1803 out 1853

1803 - 20°

1804 - 15°

1807 - 25°

1811 - 30°

1813 - 33°

1817 - 30°

1820 - 32°

1825 - 33°

1828 - 33° down

1830 - 35° start up

1835 - 37°

1840 - 40°

1848 - 40°

Seismic station, drifting in trough

Depth 384 M 210 F
 Time 1800-1855: 55 L M
 Angle 33° L
 Vol No. Fil.
 Drip Vol. 95 ML 1 M 48 ML $\frac{1}{2}$ M
 1 M 1803-1855: 50 1 M

11/17/55 1800-1855: 55 L M
 11/17/55 1803-1855: 50 1 M
 11/17/55 1800-1855: 55 L M
 11/17/55 1803-1855: 50 1 M

Nov 17, 1955 (Cont.)

Still 3

0-1000 fath. wire out net low on $\frac{1}{2}$ " wire

$\frac{1}{2}$ M. net in 1908 out ~~2150~~ ²¹⁴³ ~~approx.~~

104 net in 1912 out - lost

1924-30°

1940-35° speed up to now same as preceding tow

1947 changed speed to descent of 30 fath./min.

1954-35°

2010-45°, 1000 fath wire out

2025-40°

2043 - start up, 40°, 18 fath./min.

2100-45°, 18 fath./min.

2117-43°, 19 fath./min.

Wedge on aluminum clamp bent out of position at top.
Clamp slid down wire to 214 net, snap broke and all of
114 net gone. One snap hook on 214 net opened out, other
held. Considerable wear on edges of dumbbell clamp.

Depth 1294 M = 707 f

Time 1908-2143 = 2:35 $\frac{1}{2}$ M

Angle 45° L

Vol. H₂O Fed.

Disp. Vol.

Time factor

~~94 M = 1 M~~

$\frac{1}{2}$ M 5.2

$\frac{1}{2}$

1 M Lat

104.

$\frac{1}{2}$ M 36 M

21/10 = 35 M

V

OK

Lat 11 40 00
16 48.2 70 1910

23 Nov. (1641N 7019W)

PLK ⁴ Rough near strong wind, log 18552
 $\frac{1}{2}$ M not used due to inadequate dumbbell
clump.

1M down	2102	
	2107	28°L
	2114	32°L
	2124	34°L
	2130	35°L
*	2140	40°L
	2550	35°L
	2200	45°L

$\frac{1}{2}$ M up 2216

$\frac{1}{2}$ M up 2219

1M net fastened to end of half-inch cable, 100 lb
Wgt fastened to thimble on same lead from
net. Wgt spread thimble and shackles
slipped out of thimble. New shackles
wgt fastened to end of cable with large
shackle - also fastened to net lead to
same shackle. Works fine.

Depth

Time 2102-2219 = 1:22 1M

Angle 40°

Vol. 1/20 Fil 1M 3780M³

Disp Vol 125 ML

Time / meter 1M 2.7

1M / 100 33 ml

✓

depth
length 1 m

Depth 407M = 222F
 time 1903-1952 = 491M
 angle 27°L
 Vol. H₂O Fil. 2240 M³
 Displ. Vol. 40 ML
 time factor 1M 1.6 ~~4.11~~
 1M DV/10m³ 18 ML
 ✓

Depth 360M = 193F
 time 0131-0211 = 401M 0139-0205 = 26½M
 angle 38°L
 Vol. H₂O Fil 1M 1820 M³ ½M 1260 M³
 Displ. Vol. 44 ML 1M 16 ML ½M 9 ML
 time factor 1M 1.3 ½M .9
 1M DV/10m³ 24 ML ½M 18 ML
 ✓

LT N. SERIAL NO. 1583
 17 5.8 97 322

25 Nov. Log 29794 #1
 PLK-5-

1M down	1903	23°L
8 Fath/min	1910	31°L
135F 11 Fath/min	1919	25°L
210 Fath	1925	27°L
250F at depth	1930	22°L
10F/min start up	1932	20°L
14F/min	1940	30°L
2	1948	30°L
1 surface	1952	

no comment.

SERIAL NO. 1584

28 Nov. #2
 PLK-5-

PLK-5-

BT VP-2 #6

Now using ½ meter net in Bay Bie's small base
 stop with two shackles - one above one below.
 net located 25 fath above 1M net. Left 1M
 net on bottom of cable cause do not want
 shackle arrangement for Bie's clamp.

1M down	0131	
½ M down	0139	15°L
19 F/min	0141	
145 Fath	0145	30°L
	0149	40°L
at depth 250 F	0151	38°L
start up	0153	
19 Fath/min	0155	45°L
170 F	0157	48°L
	0202	33°L
½ M up	0205	
1M up	0211	

LT N. Log 29
 16 36.2 72 29.6

good catch

Shackles on Bie's clamp
 now L work 015. Will
 continue this arrangement.

26 Nov. light breeze, mild sea
 PLK-7 BT # 7
 Surf Temp 82.2°F

1M down 0925
 1/2 M down 0936

916M - 500 Fath 0949
 1000

1005
 start up 1046

2 F/min 1048
 1052

1053

1/2 M up 1057

1M up 1106

15°L think lost net - hanging
 11 to ship many times

10°L

10°L

20°L

Everything looked normal no sea + bar -
 think lost angle reaching due to
 no motion forward + calm sea + very
 light breeze.

Depth 874 = 11477F

Time 0925-1106-1141-1M

0936-1057-1121 1/2 M

angle 15°L

Vol Prof 1M 4760 m³

54
 1/2 M 3780 m³

Disp Vol 31 ML 1M

time factor 1M 3.4

1/2 M 2.7

1M 6.5 ML

24 ML

✓

27 Nov Log 450

PLK-8
 A nice time for PLK tow. have just spent the preceding 5 hours alternating in the hell hole with Bot - rewinding hydro wire. almost finished but now have changed for PLK tow. went back to wire winding and finished at 0400.
 (extremely tired - which adds to hazard + enhances chances for error + loss of PLK.) was successful and got rare type looking fish.

1M down	0215	
1/2 M down	0225 ✓	20°L
20 F/min	0227	
	0230	26°L
175 Fath	0232	20°L
	0235	35°L
	0236	* 60°L
		Bring ship into wind & slow down
at depth 250 F	0237	60°L
start up	0241	
21 F/min	0244	* 35°L OK
20 F/min	0245	
130 Fath	0247	20°L
1/2 M up	0251 ✓	
1 M up	0257	

Depth 229 M = 125 F
 time 0215-0259-44-M 0225-2251-26-M
 angle 60°L
 Vol H₂O Fil 1/M 2100 M³ 18 M³
 Drip Vol 49 ML 1/M 1/2 M 1260 M³
 time / after 1/M 1.5 10 M³ = 1/2 M
 1 MOK / 12 M³ 21 ML 1/2 M 9
 1 MOK / 10 M³ 56 ML

✓

OK

Lat N Long W
14 22.6 11.4

27 Nov 55 #2
PLK-9

log 51511 strong wind big waves

1M down 1826
19 F/min 1835
1836
1840
1841
at depth 251 Fath 1843
1845
start up 20 F/min 1850
1853
1855
1M up 1900

29°L } 17 min
30°L }
22°L }
27°L }
22°L }
22°L }
19°L } 10 min only
21°L }
25°L } 200 F

1/2 M clamp, thrust strip - for
recording - lower, without

Depth 424 M = 232

Time 1826-1900=34.1M ~~1835-1855=20.0~~

angle 22°L

Vd H₂O Fil 1M 1540 M³

Drip Vol. 31 M³ L 1M

Time factor 1M 1.1

1M 1.1

Lat N

11 54.17

Long W

15 42.6

28 Nov. 55 log 6882.4 mid/sea + wind

PLK-10

SERIAL NO.
1586

1 M down	1634	
1/2 M down	1638 ✓	A. clamps - 12.1
19 F/min	1640	20°L
	1643	20°L
	1646	30°L
at depth 250 =	1649	20°L
	1651	30°L
20 F/min	1653	30°L
	1656	20°L
	1700	30°L
1/2 M up	1705 ✓	
1 M up	1710	

Depth 396 M = F 216

Time 1634-1710:36.1 M 1638-1705:27.2 M

Temp 30°L

Vol H₂O Fil. 1 M 1680 m³

Drip Vol. 3.1 M 1.1

Time 1.2

1 M 23 mL

1 M 1680 m ³	1 M 1260 m ³
1 M 1.2	1 M .9
1 M 23 mL	1 M 23.9 mL

21 NOV 55-

Attempted to lower "SBox" at 2242. Reached a depth of 3000 M on indicator — (actual depth by Fathometer 1513 Fath. Intend to go deeper but time would not allow — (jerked station & storm coming)

Box broke surface with some 50 odd meters left. Came to abrupt halt hit side of ship fixed and put hole through screen.

All doors were shut, but nothing inside. Do not think it hit bottom, however, door appeared to be closed upon hitting ship — all happened too fast.

Left time go much slower when under 100 M to 50.

ave temp — 43°C

✓

depth 408 M - 222 F

time 1M 1705-1746 = 41 min $\frac{1}{2}$ M 26 min

angle 27°C

W.H.O. Fil 1M 1960m³ $\frac{1}{2}$ 1260m³

Displ. Vol. 73 M³ 15 M³ $\frac{1}{2}$ M

time factor 1M 1.4 $\frac{1}{2}$ M .9

1M 24/103m³ 37 M³

$\frac{1}{2}$ M 24/102m³ 83 M³

Lat N SERIAL NO. 158750
11 32.6 75 54.5

29 NOV 55

PLK-11

log 58224

mild sun & wind
Lat

1M down	2420
$\frac{1}{2}$ M down	2425 ✓
19 F/min	2426
	2430
	2433
232 Fath	2435
depth 250 Fath	2436
start up	2440
	2443
	2445
	2447
$\frac{1}{2}$ M up	2451 ✓
1M up	2456

At 2425

25°C

20°C

19°C

20°C

26°C

17°C

21°C

26°C

30°C

Depth 412 M = 225 F

time 2420-2456 36 M 2425-2451 26 $\frac{1}{2}$ M

angle 26°C

W.H.O. Fil 1M 1680m³ $\frac{1}{2}$ 1260m³

Displ. Vol. 73 M³ 15 M³ $\frac{1}{2}$ M

time factor 1M 1.2 $\frac{1}{2}$ M .9

1M 24/103m³ 37 M³

$\frac{1}{2}$ M 24/102m³ 83 M³

Down for the day — Very hard to pull down at 100 M. Not tried.

SERIAL NO. 1588

29 NOV 55 #2

PLK 12

log 50626

no wind, cloudy day

1M down	1705
$\frac{1}{2}$ M down	1715 ✓
20 F/min	1717
	1722
	1724
	1726
at depth 250 F	1727
start up	1732
$\frac{1}{2}$ up 1741	1735
1M up 1746	1739

25°C

28°C

20°C

29°C

27°C

30°C

34°C

30°C

speedometer not working — had to keep making marks — & had no catch.

Filed to record time — had much difficulty pulling Al down off wire — not that got Al down in the net.

★ extreme view — luminous —

◀

Depth 424 M = 230 F
 time 101 40 min 2 M 28 min
 angle 22° L
 Vd 94.4 Fd 102.1 M 18 M
 Disp Vol. 28 ML 1 M 10 M 4 M
 time 1.31 M 9 1/2 M
 1 M DV / 1.3 M³ 15 ML
 1 M DV / 1.02 M³ 55 ML

4/ No time

Lat N SERIAL NO. 158937
 12 23.3 77 45.5

30 Nov. 55 Log 97406 sea wind mild
 PLK-13

1 M down	2030	
1/2 M down	2037 ✓	
2 OF/min	2038	
	2039	16° L
	2043	19° L
	2045	15° L
	2047	17° L
250 Fd	2048.5	22° L
start up	2050.5	15° L
	2054	15° L
	2055	14° L

no watch +
 no meter ? 2105 ✓
 name as PLK 12 2110 1 M

up - OK

suggestion - make net 100 lb wet with a flat
 surface to keep net in place
 on deck while rigging for tow
 "saves time"



Depth 434M = 236F
 time 1100-1140 - 40 min. ± 27 min.
 angle 16°L
 Vol H₂O Fil 1M 1820M³ ± 1264
 Drip Vol. 12M - 1M 5M2
 time factor 1M 1.3 ± 0.9
 $\frac{1}{2}$ M 21/10²M 33 M L

✓

Depth 1865 F
 time 1340-1715 - 3hr 35 min
 angle 44°L
 Vol H₂O Fil.
 Drip Vol.

OK

Lat N Long W
 11 16.8 79 13.1

1 Dec 55 Log 1089.10
 PIK-14

Serial NO. 1590

1M down	1100	
$\frac{1}{2}$ M down	1108 V	
36M/min	1109	24°L
	1110	22°L
145M		25°L
200M		24°L
300M		19°L
410M		16°L
-457M		19°L
440M		20°L
300M		25°L
130M		

$\frac{1}{2}$ up ?
 $\frac{1}{2}$ M up 1130 $\frac{1}{2}$ sec work
 1140 OK

FBTOC-2
 1 Dec 55 Log

1865 Fath.

→ Core no. 8

Lat N Long W
 11 16.6 79 14.4

start down 1340 28°L slow ahead in large circle to right

650M	28°L	
1220M	62°L	
1520M 1349	54°L	recovered tow - it
2050M 1358	48°L	opened and closed.
3492M 1414	35°L	bottom of FBTOC
4930M 1447	32°L	not scratched and
5000M 1504	44°L	below it spent most
3320M 1537	17°L	of its time up and down
3010M 1545	22°L	
2322M 1557	25°L	No sample in reason not

ship at stand still and line vertical out of way up.
 up - 1715 all recovered up from 1000 ft - up to FBTOC - cut off 100 M.

Lat N Long W
 9 34.4 79 56.4
 0600
 262

2 Dec 55

just outside Panama Canal

PLK-15

$\frac{1}{2}$ m down for a 15 minute surface tow.
 about 6 feet below surface

(water appeared dark green for obvious reasons) - then clear green still in the water (algae)?

Lat N Long W
9 24.8 79 52.2

6 Dec 55

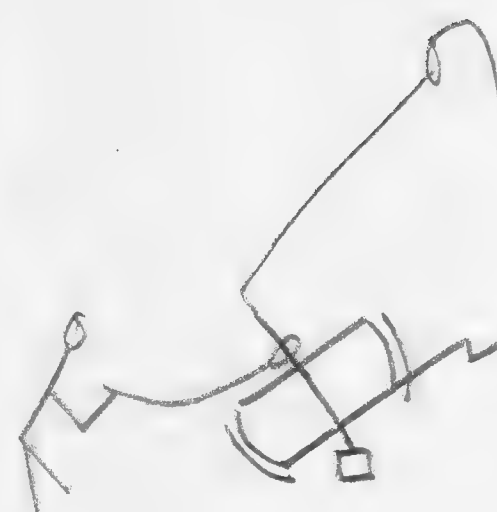
log 1231.64

sea + wind mild

Box 32

Box down 0933

hit bottom 0937 at 63M



Box was coiled on deck - bottom door
coiled and then center divider was blocked
up by wood block. As which lifted
box 2 men pulled inboard with short rope
attached to top of box. Over with no trouble
and lowered immediately.

(gave considerable time not having to cork
bottom door while hanging over side)

(Spring top weak - I am now
cork bottom door by myself)

No 2 Box in
safety

Manufactured by
No 3 4 2 1
for

7. Dec. 55 log 1405.20
 PLK-16

sea + wind mild

1M down	0630	
$\frac{1}{2}$ M down	0635	V
32M/min	0639	
	0642	25°L
310M out	0645	19°L
250F out	0649	
start up	0651	20°L
	0655	25°L
$\frac{1}{2}$ up	0705	
1 up	0715	

depth	430 M = 235 F	
time	0630-0715 = 45 / M	0635-0705 = 30 $\frac{1}{2}$ M
angle	20°L	20°L
Vol. Ho. Fil	1M 1680 M ³	$\frac{1}{2}$ M 1400 M ³
Dip Vol.	26 M ³	19 M ³ $\frac{1}{2}$ M
time factor	1M 1.2	$\frac{1}{2}$ M 1.
1M DV/1.2	15 M ³	
$\frac{1}{2}$ M DV/1.2	9.5 M ³	

V

Lat N SERIAL NO. 159247
 12 512 570 22.0
 sea + wind fair

8 Dec 55 Log 1524.39
PLK-17

1M down	0725	
1/2 M down	0731 ✓	
	0733	20° L
34M/min	0734	
	0738	20° L
	0740	22° L
at depth 457M out	0742	
start up	0744	25° L
	0748	30° L
	0755	25° L
1/2 up	0800 ✓	
1 up	0814	

depth 415M - 226 f
 time 0725-0814 49-1M 0731-0800 29 1/2 M
 angle 25° L 20M³
 Vol. RO Fil. 1M 2240M³ 1/2 M 1400M³
 Dig. Vol. 26ML/M 12ML 1/2 M
 time per 1M 1.6 1/2 M 1.
 1M 2.1 / 1.2 M 1.2 M
 1M 2.1 / 1.2 M 1.2 M

✓

depth 397 M = 217 F
 time 1223-1307 = 44-1/4 1227-1300 = 33 1/2 M
 angle 30° 22 M³
 Vol H₂O Sat. 1 M 1960 M³ 1/2 M 1540 M³
 Deep Vol. 43 ML 1 M 23 ML 1/2 M
 time factor 1 M 1.4 1/2 M 1.1
 104 M³

V

1 M 24 M³ 22 ML
 1/2 M 24 M³ 53 ML

V

9 Dec 55
 PLK-18

log

1660.77

sea - wind pin

SERIAL NO. 1593

1 M down	1223	
1/2 M down	1227 ✓	
	1230	22°L
33 M/min	1231	
	1235	22°L
	1238	25°L
	1240	30°L
250 Fath	1241	30°L
start up	1243	30°L
	1245	25°L
	1250	29°L
	1253	20°L
	1256	29°L
1/2 up	1300 ✓	
1 up	1307	

SERIAL NO. 1594

9 Dec 55
 PLK-19

log

1662.77

sea - wind pin

Lat N 14 46.0 Long W 78 12.0

1 M down	1842	
1/2 M down	1845 ✓	
29 M/min	1847	22°L
	1849	22°L
	1852	silent ship
	1902	22°L
	1904	OK down
30 M/min	1905	25°L
250 =	1912	25°L
start up	1914	
	1919	25°L
	1921	25°L
1/2 up	1930 ✓	
1 up	1932	

by cat (3 M³ 1/2 M)3. M³ 1/2 M

OK

Lat N Long W
16 10.5 79 09.17

10 Dec 55
Box 43

Log 1775.33

Sent box down during core operation
in 680 FHL of water by ~~estimated~~ ~~method~~
in after lab.

680
1.83
2040
5940
680
1247.40 M

Started down at 5955
going at 60 M/min.
Thought this was too
fast as slack appeared
when roll was toward
wire. Slowed to 50 M/min.
This operation was OK.

3002 all the way down.
let out 200 M more
than ~~than~~ total
wire out 1444 M.

Came up almost to
surface and had to
halt at 782 M out
while cat came in

and in operation at
1040.

Surface end in tanks.
doors closed and
about a span of
of bottom -

rem. oxygen +
sand + foam.

(let these 100 tons - 1000
have been taken out
by Borda was coming -
was never reaching)

(let releasing device knuckled
off when hit side of a box
coming up - down on a
cable gone.

Doc says shouldn't use it
again until at strange
signs + different
sounds much?

10 Dec 55 Log 1975.33 (by mvlh)
 PLK-20

Just before letting down noticed that
 speedometer cable was broken again.
 lowered very slowly 30 m/min
 for 15 minutes.

1M down 1555
 1/2 M down 1600 ✓
 30 m/min ?

1603 35°L
 1555 42°L
 1609 43°L
 250F 1615 55°L
 start up 1619 95°L
 * 16 min 1624
 1640

1649V
 1M up 1653

SERIAL NO. 10.
 1595

1M sample full of
 varnished fishery
 in forward part of
 ship.

depth 323M = 177 F
 time 1555-1653 58 min 1M 1/2 49 min
 angle 45°L
 Vol (H₂O) Fil. 1M 2660 m³
 Deep Vol. 20ML 1M

32 M³
 1M 2240 m³
 44 ML 1M

time factor 1M 1.9 1/2 M 1.6
 1M DL/100M = 7.5 m

13 Dec 55

Log 2115.41

mild sea + wind

PLK-21

1M down	2030
$\frac{1}{2}$ M down	2038 ✓
21 F/min	2040
	2041
	2044
	2046
250 Fath	2048
	2050
	2054
	2056
$\frac{1}{2}$ up	2109 ✓
1 up	2215

 22°L
 19°L
 15°L
 19°L
 19°L
 20°L
 17°L
 20°L

SERIAL NO. 1596

Now using new block on Davy with built in indicator, however, almost useless cause block turns to outside in low water.
 (It reads in M)

depth 433 M = 235

Time 2030-2215: 1:45-1M

2038-2109 = 1:31- $\frac{1}{2}$ M

Angle 18°L

Vol/H₂O Fil 1M 4500m³ $\frac{1}{2}$ M 4200 m³

Dropt. Vol. 38mL/1M

16mL $\frac{1}{2}$ M

Time factor 8 1M 3.5

 $\frac{1}{2}$ M 3.0

1M 8.

1M 2.7 mL ✓

6mL for amphipod + teste (salp) not included

 6.00
 1.00
 5.00

OK

Lat N
16 05.2Long W
76 11.3

14 Dec 55 Log 2213.58

PLK-22

1 M down

0840

1/2 M down

0845 ✓

20 F/min

0846 150 L

0849 250 L

0851 200 L

250 Fath

0853 200 L

0855 250 L

0858 250 L

0901 290 L

1/2 up
1 up

0909 ✓

0915

SERIAL

NO. 1597

depth 404 M = 221

Time 0840-0915 = 35-M

angle 28°

Vol H₂O Fil 1 M 1680 M³Disp Vol. 36 M³ L¹ M

Time factor 1 M 1.2

1 M 20/1000 21-M L

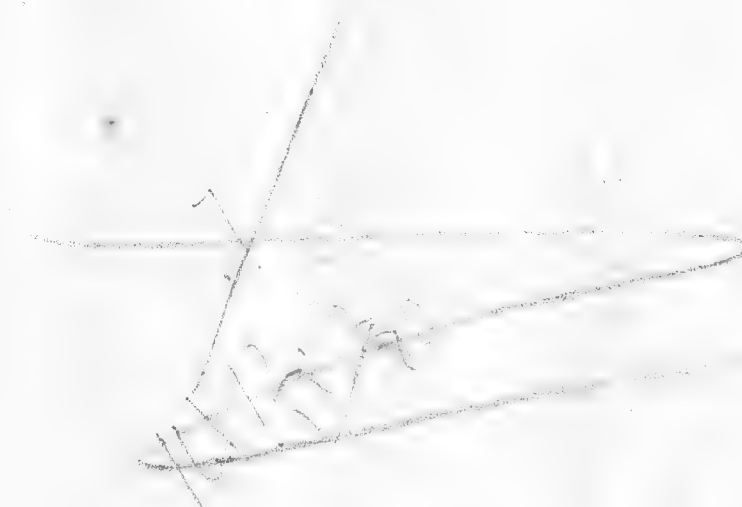
0845-0909 = 24-1/2 M

16 M³1/2 M 1120 M³

12 M L 1/2 M

1/2 M .8

1 M 20/1000 15-M L



Time

1220	—	300 feet of rope out	
1225	—	45 M/min	
1231	—	400 M out	25°C
1237	—	690 M out	25°C
1240	—	800 M out	
1242	—	900 M out	
1244	—	1000 M out	
1250	—	bottom at 1335 M	36°C
1256	—	1350 M	32°C
1301	—	1395 M	33°C
1307	—	1446 M	35°C
1314	—	1480 M	25°C
1326	—	1527 M	36°C
1335	—	1561 M	32°C
1337	—	start up —	} 25 all the way
1415	—	surface	

I call it a successful EBT0C because we got living organisms from the epic benthic, however, I am certain that at least most of the time it was at the bottom, it was up and down, reasons why:

1. one small brittle star (size)
2. some obvious crustaceans about - large
3. small objects about 1/2" - this large in size specimens around (100's of them) that all sank to the bottom after adding formalin.

1. bottom current was not scratched
2. mud found in release much.
3. sand only found in top 1/2 meter net.
4. one sand in green cut end.
5. Release arm bent and end of it highly polished. (and was lost up away from bottom if in correct position)

4- p + ~~Chaetognatha~~

However, it came up in the final closed position

Depth 634 F as indicated on Fathometer
 Time 1220-1415 = 1hr. 55 min
 Angle 30°
 1st Run
 Dipl. Vol

15 Dec 55 log 2407.57 sea + wind mild
 * EBT0C 3

Made a successful EBT0C drag in 634 Fath. Procedure was quite different and results were good regardless of the comparatively shallow depth. Same procedure can be used at real depth.

Procedure:

1. 300 foot 3/4 inch line was tied to EBT0C bridle.
2. 100 lb wt put on end of wire.
3. Ship full stop - (after read there was a 1 1/2 Knot current)
4. cock + lower 300 feet wire by hand - it tumbled off to stern with help.
5. then lower wt + lower wire at 40 M/min.
6. As wt approached attempted depth catch closely - it was clearly registered when wt hit bottom. You now know that EBT0C is there also.
7. Gyrofanatically every 5 minutes raise wire about 40 M and let fall again till wt hit bottom as registered on the. This keeps minimum amount of wire on bottom and lets you know exactly where you are. (corrects for wire angle change)
8. Raise at 30-M/min?
9. Use main winch to pull in EBT0C when reach rope -



Curve 2
 angle 25°
 Vol H₂O Fil 1M 1960M³
 Drip Vol 33ML 1M

time factor 1 m 1.4 2 m .5

1 page 3 days, 12 mL with water and in water

↓ half of this is shavings from Verna
corrected should read 7 ML

4/6 M = 227 F
 time 130-1358 = 48 min 1m
 angle 240°
 Vol. 1m 2240m³ $\frac{1}{2}$ 1120m 13 58 1h 40
 Dep. Vol. 31m 1m 12m 2 1m 1m 0 1K
 surface factor 1/21 1.6 $\frac{1}{2}$ M -8
 14 m 1m 0V/10-11 75.12

1 M net	2407
$\frac{1}{2}$ M net	2412
32 M/min	2415

2415	160L
2419	210L
2421	250L
2423	210L
2427	250L
2429	200L
2430	200L
2433	290L
2436	260L
2440	
2448	

SERIAL NO. 1598

17 Dec 55 log 26157
PLK-24

1M down	1310	
\pm 1M down	1314 ✓	
35M/min	1315	
	1318	25°C
	1321	18°C
	1323	22°C
~ 250F	1324	24°C
stop	1338	15°C
	1341	15°C

20	11	Long W
18	3.1	3.9

18 Dec 55
PK-25

log

Lat 18 42.8

Long 79 43.4

2791.40

mild sea - wind

SERIAL NO. 1599

1/M down
1/2 M down
37M/min

1930

1933 ✓

1940

1941

1943

1945

1947

1949

1952

1954

1957

2001

2004

2015 ✓

2021

250 F
stairw

1/2 up
1 up

1942

2002

2202

1902

2502

2502

2502

2202

2502

2502

depth 415 M = 226 F

time 1930-2023 = 53-1 M 1939-2015 = 36-1/2 M

angle 250°

Vol. H₂O Fil. 1 M 2520 M³

24 M³
± M 1660 M³

Dipol. Vol. 53 M³ (1 M)

16 M³ (1 M)

time factor 1 M 1.8

± M 1.2

1 M 21 M³

± M 20 M³ = 66 M³

U

OK

20 Dec 55

log 2972.55

rough

PLK-27

Ship had rudder trouble so gave me
about 5 hours to drag. About 3000 F
drag no "Doc" admitted not as E 13700.
Could probably take too long anyhow -
no wait for a 1000 F PLK haul.

1M down 1255 ✓
1/2 M down 1307 ✓
34M/min

1312	39°L
1318	42°L
565M 1323	45°L
800M 1332	43°L
1010M 1338	53°L
1342	51°L
1270M 1345	55°L
1460M 1351	56°L
1600M 1356	50°L
1530M 1404	45°L
1422	44°L
1500	45°L
1504	51°L
1510	52°L
1250M 1520	50°L
800M 1530	50°L
600M 1540	48°L
400M 1550	56°L
270M 1556	57°L

1/2 up 1603 ✓
1 up 1613

rich in quantity + quality.

depth 1295M = 708 F
time 1255-1613:4:18M 1307-1603:3:57 1/2 M
angle 45°
Vol. H₂O Fil. 1M 12040 M³ 1/2 M 11670 M³
Dip. Vol. 74M³ 1/2 M 15M³
time factor 1M 8.6 1/2 M 7.9

20 Dec 55

log 2971.96

rough sea

PLK-26

1M down 0900
1/2 M down 0914 ✓
35M/min 0915

0917

0919

0921

0924

250 Fath

0926

up

0928

0930

0936

0940

1/2 up

0948 ✓

1 up

0957

30°L

28°L

25°L

30°L

26°L

30°L

25°L

31°L

30°L



depth 396M = 216 F
time 0900-0957:57M
angle 30°
Vol H₂O Fil. 1M 2660M³
Dip. Vol. 45M³ 1/2 M
time factor 1M 1.9
1/2 M 1.1

0914-0948:34 1/2 M

22M³1/2 M 1540M³17M³ 1/2 M

1/2 M 1.1

1/2 M 1.1

✓

1M DV/10³M³ 6. M³1/2 M DV/10²M³ 11 M³

21 Dec 55 Log 3085.89
PK 28

Lat 19 13.1 Long 111 23.7

calm - light wind
off shore breeze

1M down 1250
 $\frac{1}{2}$ M down 1301

100 M
150 M
200 M
250 M
300 M
350 M
400 M
250 F = 457 M

100 L
100 L
130 L
130 L
100 L
110 L
140 L
150 L

SERIAL NO. 1602

15
10
14

$\frac{1}{2}$ up 1330
1 up 1335

actual depth 462.5 feet get very close to
where (3 miles) a very fine detail a
for an volume given.

depth 430 M = 235 F
time 1250-1335 = 45 M 1301-1330 = 29 $\frac{1}{2}$ M
angle 15° L 20 M
Det H₂O Vol 1 M 2100 M³ $\frac{1}{2}$ M + 400 M³
Dupl. Vol. 5 ML 1 M 8 ML $\frac{1}{2}$ M
time factor 1 M 1.5 $\frac{1}{2}$ M 1.5
1 M 20/15 M³ 2.4 ML $\frac{1}{2}$ D 4/15 M³ 40 ML

✓

22 Dec 55
PLK 29

log 3162.47

Lat N 19 46.7
Long W 10.7

saline sea

Went down to 1000 F before hydro-boring operation. Stayed down until 30 minutes, short intervals occurred. Then started up about 6h + 10 minutes at depth.

1 M down 0635
1/2 M down 0646
1/2 M/minute 0649

400M	0655	10°C
610M	0700	22°C
760M	0705	22°C
910M	0710	25°C
1100M	0715	37°C
1250M	0720	38°C
1400M	0725	39°C
1570M	0730	40°C
1770M	0738	43°C
start up	1210	45°C
1520	1220	45°C
1390M	1225	20°C
1120M	1230	19°C
900M	1235	21°C
770M	1240	25°C
stop 10 minutes		25°C
640M	1250	25°C
500	1255	25°C
300M	1300	25°C
150M	1304	20°C
1/2 up	1308	19°C
1 up	1315	

SERIAL NO. 1603

depth 1401M = 756 F

time 0635-1315-6:40 1M 0646-1308-6:22 1/2 M

angle 40°C

H₂O Fil 1M 18620M³

Regl. Vol 34M³ 1M

me Jantun 1M 13.3

1M 21/10³ 18

254M³
1M 17780M³

11M 1/2

1/2 M 12.7

204/10³ 43M³

3 minutes 1/2 M

1/2 M 10 minutes 1/2 M

depth 434 M = 237 F
 time 1430-1523:53 / M 1435-1516:40 / M
 angle 17° L
 Vol H₂O Fil 1 M 2520 M³
 Displ. Vol 36 ML / M 12 ML ±
 time factor 1 M 1.8 1/2 M 1.0
 ✓ 1 m 20 / 18 1/4 m 18 1/4 46 m

27 Dec 55
 PLK-30

log 332.9.7

calm

1 M down 1430
 1435
 increased speed - in down ← 44 M/min
 1438
 250 M 1440 15° L
 340 M 1442 20° L
 ★ 457 M 1445 17° L
 start up 1447 17° L
 430 M stop 1448 15° L
 stop 1506 14° L
 1515
 1523
 26 M³
 17820 M³

SERIAL NO. 1604

23 Dec 55
 PLK-31

log 3373.13

calm

Lat N 19 13.0
 Long W 118 59.7

1 M down 2316
 1/2 M down 2324 V
 49 M/min

depth 430 M = 235 F 457 M 2331 20° L
 time 2316-2401:45 / M 2324-2355:31 1/2 M 2333 17° L
 angle 20° L (2324-2355:31 1/2 M) 2335 17° L
 Vol H₂O Fil 1 M 2000 M³ 1/2 400 20 M³ 2339 15° L
 Displ. Vol 35 ML / M 8 ML ± M 2343 14° L
 time factor 1 M 1.5 1/2 M 1.0 2 up 2355 ✓
 1 m 18 1/4 m 18 1/4 40 m 1 up 2401
 OK

1 m 18 1/4 m 18 1/4 40 m 1 up

Lat	N	Long	W
19	23.3	74	14.9

24 Dec 78
PLK-73

1/11	2323	✓
2/11	2335	✓
3/11	2345	
4/11	2355	
5/11	2405	
6/11	2415	
7/11	2425	
8/11	2435	
9/11	2445	
10/11	2455	
11/11	2505	
12/11	2515	
13/11	2525	
14/11	2535	
15/11	2545	
16/11	2555	
17/11	2605	
18/11	2615	
19/11	2625	
20/11	2635	
21/11	2645	
22/11	2655	
23/11	2705	
24/11	2715	
25/11	2725	
26/11	2735	
27/11	2745	
28/11	2755	
29/11	2805	
30/11	2815	
31/11	2825	
1/12	2835	
2/12	2845	
3/12	2855	
4/12	2905	
5/12	2915	
6/12	2925	
7/12	2935	
8/12	2945	
9/12	2955	
10/12	3005	
11/12	3015	
12/12	3025	
13/12	3035	
14/12	3045	
15/12	3055	
16/12	3105	
17/12	3115	
18/12	3125	
19/12	3135	
20/12	3145	
21/12	3155	
22/12	3205	
23/12	3215	
24/12	3225	
25/12	3235	
26/12	3245	
27/12	3255	
28/12	3305	
29/12	3315	
30/12	3325	
31/12	3335	

SEP 1964

depth 392M - 212 F

June 2325-2358-35-10 2334-2350-16-1/2 m

angle $31^{\circ}L$

Vol/160 F/L 1M 1680M³ 1/2M 700M³

Ship Vol 27 April 1941 26 April 1941

Time factor 1/2 24.5

$\frac{1}{m} \frac{d^2 m}{dt^2} = -\frac{GM}{r^2}$

31A

210

$\frac{1}{2} \star \begin{matrix} 10^2 & 160 \\ 10^2 & 150 \\ & 310 \end{matrix}$ (just vol. + cyphersphere)
minus vol. + cyphersphere
(combined)

Lat N Long W 73
17 10.6 77 56.2

24 Dec 55
PLK-32

3434,882

Time	Altitude	Temp
1 M down	1219	
$\frac{1}{2}$ M down	1236 ✓	
55 M out stop	1227	
36 M / mi	1235	15°C
37 M	1240	15°C
38 M	1244	14°C
* 250 F	1247	14°C
stop	1249	14°C
36 M	1252	24°C
38 M	1254	17°C
38 M	1258	25°C
nil. t. n. h. p.		
150 M	1308	14°C

SERIAL NO. 1605

Indians who were carrying a
load which was too heavy
for them. The men were
very poor and the women
were very poor. A young
man took up a rifle and
killed a deer at a distance
of 1000 yards.

2 out 1340 W
 1 M out 1345

depth 433 M = 236 F

time 1219-1345-126-1M 1226-1340= 1:14 - $\frac{1}{2}$ M

angle 180°

Vol H₂O Fed 1 m 4060 m³ $\frac{1}{2}$ m 3544 m³

Drip Vol: 36 ML 1M 12 ML $\frac{1}{2}$ M

time/act	1st 2.9	1 2.9
----------	---------	-------

1/4 D6/12/24 6ML 1/4 D6/12/24 24ML

left out
on chart
because

88

25 Dec 55 Log 3551.00
PLK-34

1M down 1200 ✓
± 1M down 1207 ✓

30M/min	1210	27°L
150M	1211	27°L
200M	1213	30°L
240M	1214	35°L
280M	1216	38°L
320M	1217	40°L
360M	1219	36°L
400M	1220	28°L

stop at 450 1223 silent ship 43°L

down	1246	46°L
570M	1249	43°L
700M	1253	43°L

500 F ← 47 M/min 1254 45°L
914 M 1258 43°L
1357 40°L

600A	1400	40°L
460M	1404	35°L

stop silent ship
1415 40°L

270M	1421	40°L
100M	1425	41°L

± up 1430 ✓
1 up 1437

depth 669M = 365 F

time 1200-1437-2:37-1M 1207-1430-2:23-±M

angle 43°L 96 m³

H₂O Fil. 1M 7430M³ ±M 672°

Vol. 79 ML 1M 27 ML

time factor 1M 5.3 4.8

ADY 10M³/1ML

± 0.1/10M³ 28 ML

✓

OK

Lat. N
19 17.0

Long W
76 51.2

fair breeze

SERIAL NO. 1607

26 Dec 55 Log 3669.13
PLK-35

1M down 0955
 $\frac{1}{2}$ M down 1000 \checkmark
32 M/min

1004
1005
★ 50 M/min 1007
370 M 1010
600 M 1015
740 M 1017

437F ← stop 200 M 1019

15 min { start up 1037

460 M 1045

300 M 1049

200 M 1051

100 M 1053

up 1102

$\frac{1}{2}$ up 1105 \checkmark

1 up 1110

depth 686 M = 375 F

time 0955-1110-1:15-1M 1000-1105-1:05- $\frac{1}{2}$ M

angle 31°L 44 M³

Vol. H₂O Fil 1M 3500 M³ $\frac{1}{2}$ M 3080 M³

Displ. Vol. 40 ML 1M 19 ML $\frac{1}{2}$ M

time factor 1M 2.5 $\frac{1}{2}$ M 2.2

1M DV/min 11 ML $\frac{1}{2}$ DV/min 43 ML

V

Lat N Long W
19 37.5 76 17.5 1608 77

air would mild sea
about 8 miles from shore
on 2000 F. ship

17°L

19°L

23°L

27°L

30°L

31°L

31°L

33°L

31°L

27°L

33°L

39°L

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

OK

silent ship, also caught
in hydrophone net. Must
come up.

stop for silent ship

No apparent change
at 50 m/min. (come up
slowly.)

attempted to make a 1000 m
drag but hydrophones
picked things up.

retired for 437 Fath

OK

Lat N
19 49.6Long W
77 36.827 Dec 55 log 3755.58
PLIK-36Lead. chain 12 mbs
for haul.1 M down 0145
2 M down 0150 ✓

50 M/min 0154

750 M 0157

8205

1000 M 0212

1000 F 1830 M 0232

start up 0252

1500 M 0300

1000 M 0310

650 M 0320

200 M 0326

1/2 up 0330 ✓

1 up 0340

20°L } still forward movement
25°L }
20°L }

0°L

0°L

0°L

0°L

0°L

0°L

0°L

0°L

SERIAL NO. 1610

depth 1830 M = 1000 F

time 0145-0340-1:55-1 M 0150-0330=1:40 1/2 M

angle 0°L

Vol H₂O Fil. 1 M 533.0

Dig. Vol. 33 ML 1 M

time factor 1 M 3.8

INDV/1000 7 ML 200/1000 32 ML

OK + interesting
looking uprange in
film of temperature
falling.

31 Dec 55 Log 3881.35
 PLK-37

1M down 0410
 1/2 M down 0415 ✓
 44M/min 0417

0419 21°L
 0420 21°L
 0422 26°L
 250 F 0424 25°L
 stand up 0426
 0428 30°L
 0430 29°L
 0432 30°L
 0434 31°L
 1 up 0437 ✓
 0442

depth 415M = 227 F
 time 0410-0442 = 32 0415-0437 = 22
 angle 25° 14M3
 Wet H₂O Fil. 1M/550 M³ 2M/980 M³
 Drip Vol. 35ML/1M 9ML/1M
 time factor 1M 1.1 1/2 .7
 450/11M 23ML 1.0/1.3M 64ML

Lat N 18 24.0
 Long W 75 11.0

16/11/55

OK

OK

1966 / .007
1400000
1392000

70
49.0

1400

1.4
1400
1392000

1.4
1400
1392000

depth 379 M - 207 F

time 0100-0139-39-1M

angle 34°

Vol h₂O Fil. 1M 1820 M³

Digit. vol 47 M³ 1.1 M³

time factor 1M 1.3 1/2 M 1.0

1M 0.1/103 M³ 25 M³ 1/2 M 0.1/103 M³ 25 M³

Lat N 17 33.9
Long W 73 22.1

1 Jan 56 log 4031.73
PLK-38

SERIAL NO. 1612

1M down 1454
1/2 M down 1456 ✓
42 M/min 1458
1459
240 M 1500
360 M 1504
457 M 1508
start up 1510
1513
200 M 1515
190 M 1524
1/2 up 1533 ✓
1 up 1537

30° L forward
0° L
20° L
39° L
42° L
42° L
39° L
26° L

depth 355 M - 194 F

time 1454-1537-43-1M 1456-1533-37

angle 39°
Vol h₂O Fil. 1M 1960 M³ 1/2 M 1680 M³
Digit. vol. 14 M³ 6 M³ 1/2 M
time factor 1M 1.4 1/2 1.2
1M 0.1/103 M³ 25 M³ 1/2 M 0.1/103 M³ 25 M³

2 M³ - 1000 M³ 7000

2 Jan 56 log 4082.51
PLK-39

Lat N 17 31.5
Long W 72 31.6

1M down 0100
1/2 M down 0104 ✓
26 M/min

0107 24° L
0110 27° L
0112 23° L

250 F 0119 34° L

start up 0121

0124 37° L

0126 40° L

200 M 0130 35° L

100 M 0132 30° L

1/2 up 0135 ✓

1 up 0137

+ one small insect in 1/2 M net
(habitat?)

one small insect in 1/2 M net
with human
(habitat?)

SERIAL NO. 1612

depth 351M = F192
 time 1922-2012:50-1M
 angle 40°L
 vol H.O./l 1M 2380M³
 depth vol 58ML/1M 9ML
 time factor 1M 1.7 ± 1.4

$$\frac{2380}{1000} = \frac{11}{5}$$

2380 X 1000 = 2380000

X

✓
 2380000 vol 58 ml 2380000/58 = 41034.5 time factor 1M 4.9 1/2 M 4.8

Lat N
 17 46.0

Long W
 70 05.0

strong wind + heavy sea

3 Jan log -
 PLK-40

1M down 1922
 1/2 M down 1925 ✓

40M/min 1927
 1928 29°L

200M 1930 35°L

280M 1932 31°L

1933 42°L

250F 1936 40°L

up 1938 38°L

200M 1942 40°L

1944 40°L

1946 40°L

1952 silent ship

start up 2005

1/2 up 2008 ✓

1 up 2012

SERIAL NO. 1614

OK

5 Jan log 7451.68
 PLK-41

1M 0936
 1/2 M 0938 ✓

46M/min 0939

160M 0940 12°L

200M 0941 15°L

250M 0943 16°L

310M 0944 20°L

370M 0945 16°L

250F 0947 18°L

★ start up 1153 19°L

260M 1157 24°L

stop 1158 silent ship

start 1205 19°L

1/2 up 1211 ✓ OK

1 up 1214 OK

TK 436M = 238F 1 up

0936-1214 = 2:28-1M

angle 18°

vol 6850 M³

depth vol 40ML/1M

0938-1211 = 2:33-1/2 M

angle 96 M³

1/2 M 6730 M³

depth vol 40ML/1M

SERIAL

NO. 1609

change fish

✓

Time factor 1M 3.0
 ✓ 1M DV/10³m³ 6ml 1/2M 2.7
 1/2M 28ml

Lat N 20 32.5
 Long W 67 52.0

7 Jan 56 log 4714.15
 PLK 42

heavy near rotating wind

1M down 1849
 1/2M down 1854 } rolling badly - cause slack in wire - looped around
 1910 } drum apt. would come along - no damage!
 34M/min 1912
 1913 20°L varies to vertical with ship
 218M 1913.5 15°L
 34/min 1948 start down 25-15°L
 250F 1958 24°L
 2000 start up
 2004 27°L
 1/2 up 2014 ✓
 1 up 2018

SERIAL NO. 1615

2 TL 418M = 228F
 time 1849-2018 = 1:29 - 1M
 1854-2014 = 1:21 - 1/2M
 24°L 54 M³

1M Fil 1M 4200 M³ 1/2M 3780 M³
 2 Vol 25 ML 1M 15 ML 1/2M

8 Jan 56 log 4754.76
 PLK 43

Lat N 19 57.1
 Long W 67 52.5

1 down 0440
 1/2 down 0445
 43M/min 0450
 0453
 480 0500
 500F 915M 0514
 0530
 0533
 1/2 up 0540
 1 up 0545

0-15°L
 8-15°L
 8-15°L
 8-15 start up
 0-15°L

OK

1M
 Depth 723M = 395F
 time 0440-0545 = 1:05 - 1M
 8-15°L → 11°L
 1M Fil 1M 3080 M³
 2 Vol 36 ML 1M
 time factor 2.2
 DV/10³m³ 12ml

1/2M
 0445-0540 = 55 min - 1/2M
 36 M³
 1/2M 2520 M³
 12 ML 1/2M
 1/2M 1.8
 DV 10³m³ 33ml

OK

9 Jan 56 log 4811.58
PLK-44

14-41 M, 66-03 W

big mulls - no wind

1 M down	2401	
$\frac{1}{2}$ M down	2403 ✓	
34 M/min	2405	
	2406	25°C
145 M	2407	27°C
190 M	2408	27°C
250 M	2410	40°C
320 M	2412	32°C
415 M	2414	33°C
250 Fath	2416	37°C
	2418	
	2422	32°C
300 M	2425	30°C
230 M	2429	30°C
$\frac{1}{2}$ up	2440 ✓	
1 up	2444	

SERIAL NO. 1616

1 M

$\frac{1}{2}$ M

Depth	365 M = 199.5 F
Time	2401-2444 = 43 min - 1 M
angle	37°L
V. H ₂ O Fct.	2000 M ³ / M
Depth vol.	36 M ³ / M
Time water	1.4
D ₁ / 10 ³ M ³	1.8 ml.

1 M deep sounder 100 ft to 100 ft

2403-2440 = 37 - $\frac{1}{2}$ M
24 M³
 $\frac{1}{2}$ 1680 M³

1.2
54 ml.

$$\text{Time factor} = \frac{\text{Low time mins.}}{30 \text{ mins.}}$$

Due to low wire angles in this case correction to
 X = 0.66 was made to allow for amount of water pulled.
 The 0.66 times in
 with 45' and 6.

data X.66 X 70M X 30
 2 X 1400M³

1000 F — 30 minutes at 30 ft (1000 ft)
 500 F — " " " " " "
 250 F — 2 minutes

1. Make most haul at 250 F (437m)
2. Occasionally take deep haul - 1000 Fath (1830m)
3. EBTC only on smooth flat bottom - at
 any depth with reason. Remember your wire
 is only as long. (? and heavy)
4. Forwardly immediately
5. Do not raise or lower nets faster than
 40 meters/minute — nets may blow out and
 more important piece of water through nets may
 damage organisms. *

to 0. 100 to bid out under. part to place in

T. E. REAGAN: AX

1000 F
 500 F
 250 F

1000 F — 30 minutes at depth (or more)
 500 F — " or shorter
 250 F — 2 minutes

1748
 37
 4

1. Make Mort hauls at 250 F (437 m)
2. Occasionally take deep haul - 1000 Fath (1830 m)
3. EBTOC only on smooth flat bottom - at any depth with reason. remember your wire is only so long. (? ask Harry)
4. Formaldehyde immediately.
5. Do not raise or lower nets faster than 40 Meters/minute — nets may blow out and more important force of water through nets may damage organisms. *
6. Remember to fill out info. card to place in sample jar.
7. Record data on succeeding pages after each haul as follows:

date	log	description of wind + sea	
PLK - no.			
1 m down	time		
1/2 m down	"		
1 m/minute	time		
depth	time	angle	
	↓		
250 F	two minutes		
stand up	↓		
1/2 m out	time		
1 m out	time		



60°
 danger
 stop

V8

PLANKTON HAUL

#44

DATE	1 Jan 56	1 Jan 56
LATITUDE	- long 7503.14	Long 7503.14
LONGITUDE	-	BT V8-36
DIRECTION DRIFT	187° T	
SPEED	1 kt/hr.	
NET SIZE & TYPE	1/2 meter & 1 meter	[ETOB-1/2 meter]
SKY CONDITION	overcast, raining, gusts to 20 m/h, sea 5 foot waves	
TIME NETS IN	1130	1045
TIME REACHES MAX. DEPTH	1100	1100
MAX. DEPTH	250 meters	
TIME LEAVES MAX. DEPTH	1102	
TOTAL TIME AT MAX. DEPTH	0002	
TIME NET OUT	1145	1130
TOTAL TIME	0045	
REMARKS	VEMA rolling thru 60° arc during entire haul.	
OBSERVATIONS ON HAUL	95% of sample, [larva etc, larva + mature shrimp, —, —, —, —]	

TO MR. H., DR. F., AND MR. J.

PLANKTON HAUL

DATE	NOTE: DUE TO A VERY STRONG WIND
LATITUDE	GENERAL THE VENT WAS UNABLE TO
LONGITUDE	STOP TO PERMIT PLANKTON HAULS. FOR
DIRECTION	THIS UNFORTUNATE TURN OF CIRCUMSTANCES
SPEED	I OFFER MY EARNEST REGRETS AS I KNOW
NET SIZE & TYPE	OBTAINING SAMPLES OF THE EQUATORIAL
SKY CONDITION	DRIFT PLANKTON WENT A LOT TO YOU - ALSO
TIME NET IN	I HAD TRULY LOOKED FORWARD TO DOING THIS
TIME REACHES MAX. DEPTH	WORK FOR YOU, THERE BY SUPPLEMENTING MY
MAX. DEPTH	BOOK KNOWLEDGE.
TIME LEAVES MAX. DEPTH	IT WAS A PLEASURE TO HAVE WORKED
TOTAL TIME AT MAX. DEPTH	WITH YOU.
TIME NET OUT	Best Wishes Ever
TOTAL TIME	
REMARKS	
OBSERVATIONS ON HAUL	

SAMPLE



$$\text{Time factor} = \frac{\text{Time mins.}}{30 \text{ mins.}}$$

Due to low wire angles on this line an estimate of .5 or .66 was used to determine the amount of water filtered. That is, it is estimated that this line filters .66 times as much water as the standard net tow with a 45' haul.

$$\therefore \text{Volume of water filtered} = \text{time factor} \times .66 \times 7000 \times 30 \\ = \text{time factor} \times 14000$$

This estimate will be to be checked when current meters are available.

Volume of water filtered = 14000

$$\text{Volume of water filtered} = \text{Time factor} \times 14000$$

Vema - 8 One-half Meter Plankton Samples

Plankton Sample No.	Location		Depth of Tow in meters	Volume of water filtered (in m ³)	Actual Total Plankton Sample Displacement Volume (in ml.)	Displace- ment Volume per 1000 m ³
	Latitude N	Longitude W				
1	20° 01.4'	70° 39.9'	0-185	335	16	47.7
2			0-230	150	14	93.5
3	17° 5.0'	68° 59.0'	0-1230	1620	36	22.2
4	-----	No 1/2 m. tow	-----	-----		
5	-----	No 1/2 m. tow	-----	-----		
6	16° 36.2'	72° 09.6'	0-330	252	16	63.5
7	15° 45.4'	72° 45.0'	0-850	500	13	26.0
8	15° 9.5'	73° 25.8'	0-210	301	10	33.2
9	-----	1/2 net lost	-----	-----		
10	11° 54.7'	75° 42.6'	0-365	229	16	70.0
11	11° 32.6'	75° 54.5'	0-380	168	18	107.0
12	11° 33.9'	75° 43.3'	0-380	210	15	71.5
13	12° 23.3'	77° 45.5'	0-390	204	10	49.1
14	11° 16.8	79° 13.1'	0-405	173	6	34.7
15	9° 34.4'	79° 46.4'	0-2	(15 min. tow)		
16	11° 23.2'	77° 37.1'	0-400	210	19	90.5
17	12° 51.2'	77° 22.0'	0-380	226	12	53.1
18	14° 46.0'	78° 09.3'	0-365	280	23	82.2
19	14° 46.0'	78° 12.0'	0-375	368	16	43.6
20	16° 16.7'	79° 13.9'	0-300	510	20	39.3
21	17° 28.3	76° 21.8'	0-400	610	16	26.3
22	16° 05.2'	76° 11.3'	0-370	199	12	60.0
23	18° 05.9'	80° 23.0'	0-380	218	7	32.1
24	18° 13.1'	79° 33.9'	0-380	308	12	39.0
25	18° 42.8'	79° 43.4'	0-380	280	16	57.2
26	19° 04.0'	80° 47.4'	0-365	290	17	58.6
27	19° 04.0	81° 48.0'	0-1270	2460	18	4.9
28	19° 13.1'	81° 23.7'	0-410	180	8	44.5
29	19° 46.9'	80° 40.7'	0-1370	3820	11	2.9
30	19° 13.0'	79° 26.2'	0-400	260	12	46.3
31	19° 13.0'	78° 54.7'	0-400	217	8	36.8
32	19° 10.6'	77° 56.2'	0-400	495	12	24.3
33	19° 23.3'	77° 14.9'	0-360	138	26	188.0
34	19° 14.0'	76° 51.2'	0-670	1460	27	18.5
35	19° 37.5'	76° 18.0'	0-690	560	19	34.0
36	19° 49.6'	75° 36.8'	0-1830	915	21	23.0
37	18° 24.0'	75° 11.0'	0-385	170	9	52.9
38	17° 33.9'	73° 22.1'	0-330	360	6	16.7
39	17° 31.5'	72° 31.6'	0-350	280	17	60.8
40	17° 46.0'	70° 05.0'	0-325	430	9	21.0
41	19° 10.9'	67° 06.0'	0-400	1020	18	17.7
42	20° 32.5'	64° 52.0'	0-385	620	15	24.2
43	19° 57.1	65° 07.5'	0-860	300	12	39.6
44			0-340	320	13	40.7

Vema - 8 One-half Meter Plankton Samples

Plankton Sample No.	Location		Depth of Tow in meters	Volume of water filtered (in m ³)	Actual Total Plankton Sample Displacement Volume (in ml.)	Displace- ment Volume per 1000 m ³
	Latitude N	Longitude W				
1	20° 01.4'	70° 39.9'	0-185	335	16	47.7
2			0-230	150	14	93.5
3	17° 5.0'	68° 59.0'	0-1230	1620	36	22.2
4	-----	No 1/2 m. tow	-----	-----		
5	-----	No 1/2 m. tow	-----	-----		
6	16° 36.2'	72° 09.6'	0-330	252	16	63.5
7	15° 45.4'	72° 45.0'	0-850	500	13	26.0
8	15° 9.5'	73° 25.8'	0-210	301	10	33.2
9	-----	1/2 net lost	-----	-----		
10	11° 54.7'	75° 42.6'	0-365	229	16	70.0
11	11° 32.6'	75° 54.5'	0-380	168	18	107.0
12	11° 33.9'	75° 43.3'	0-380	210	15	71.5
13	12° 23.3'	77° 45.5'	0-390	204	10	49.1
14	11° 16.8	79° 13.1'	0-405	173	6	34.7
15	9° 34.4'	79° 46.4'	0-2	(15 min. tow)		
16	11° 23.2'	77° 37.1'	0-400	210	19	90.5
17	12° 51.2'	77° 22.0'	0-380	226	12	53.1
18	14° 46.0'	78° 09.3'	0-365	280	23	82.2
19	14° 46.0'	78° 12.0'	0-375	368	16	43.6
20	16° 16.7'	79° 13.9'	0-300	510	20	39.3
21	17° 28.3	76° 21.8'	0-400	610	16	26.3
22	16° 05.2'	76° 11.3'	0-370	199	12	60.0
23	18° 05.9'	80° 23.0'	0-380	218	7	32.1
24	18° 13.1'	79° 33.9'	0-380	308	12	39.0
25	18° 42.8'	79° 43.4'	0-380	280	16	57.2
26	19° 04.0'	80° 47.4'	0-365	290	17	58.6
27	19° 04.0	81° 48.0'	0-1270	2460	18	4.9
28	19° 13.1'	81° 23.7'	0-410	180	8	44.5
29	19° 46.9'	80° 40.7'	0-1370	3820	11	2.9
30	19° 13.0'	79° 26.2'	0-400	260	12	46.3
31	19° 13.0'	78° 54.7'	0-400	217	8	36.8
32	19° 10.6'	77° 56.2'	0-400	495	12	24.3
33	19° 23.3'	77° 14.9'	0-360	138	26	188.0
34	19° 14.0'	76° 51.2'	0-670	1460	27	18.5
35	19° 37.5'	76° 18.0'	0-690	560	19	34.0
36	19° 49.6'	75° 36.8'	0-1830	915	21	23.0
37	18° 24.0'	75° 11.0'	0-385	170	9	52.9
38	17° 33.9'	73° 22.1'	0-330	360	6	16.7
39	17° 31.5'	72° 31.6'	0-350	280	17	60.8
40	17° 46.0'	70° 05.0'	0-325	430	9	21.0
41	19° 10.9'	67° 06.0'	0-400	1020	18	17.7
42	20° 32.5'	64° 52.0'	0-385	620	15	24.2
43	19° 57.1	65° 07.5'	0-860	300	12	39.6
44			0-340	320	13	40.7

Vema - 8 One Meter Plankton Samples

Plankton Sample No.	Location		Depth of Tow in meters	Volume of water filtered (in m ³)	Actual Total Plankton Sample Displacement Volume (in ml)	Displace- ment Volume per 1000 m ³
	Latitude N	Longitude W				
1	20° 1.4'	70° 39.9'		1040	18	17.3
2						
3	No 1 M samples					
4						
5	17° 5.8'	71° 37.0'		1960	40	20.4
6	16° 36.2'	72° 09.6'		1600	44	27.5
7	15° 44.4'	72° 49.0'		4040	31	7.6
8	15° 9.5'	73° 25.8'		1760	44	25.0
9	14° 22.6'	74° 11.4'		1360	37	27.2
10	11° 54.7'	75° 42.6'		1440	38	26.4
11	11° 32.6'	75° 54.5'		1440	24	16.7
12	11° 33.9'	75° 43.3'		1640	72	43.9
13	12° 23.3'	77° 45.5'		1600	28	17.5
14	11° 16.8'	79° 13.1'		1600	22	13.8
15	No 1 M sample					
16	11° 23.2'	77° 37.1'		1800	26	14.4
17	12° 51.2'	77° 22.0'		1960	26	13.2
18	14° 46.0'	78° 09.3'		1760	43	24.4
19	14° 46.0'	78° 12.0'		2320	58	25.0
20	16° 16.7'	79° 13.9'		2320	44	18.9
21	17° 28.3'	76° 21.8'		4200	38	9.0
22	16° 05.2'	76° 11.3'		1400	36	25.7
23	18° 05.9'	80° 23.0'		1640	33	20.1
24	18° 13.1'	79° 33.9'		4320	31	7.2
25	18° 42.8'	79° 43.4'		2120	53	25.0
26	19° 04.0'	80° 47.4'		2280	46	20.2
27	19° 04.0'	80° 48.0'		7920	74	9.3
28	19° 13.1'	81° 23.7'		1800	5	2.7
29	19° 46.9'	80° 40.7'		16000	34	21.2
30	19° 13.0'	79° 26.2'		2120	36	16.9
31	19° 13.0'	78° 54.7'		1680	38	22.6
32	19° 10.6'	77° 56.2'		3440	26	7.6
33	19° 23.3'	77° 14.9'		1440	27	18.7
34	19° 14.0'	76° 51.2'		6280	79	12.6
35	19° 37.5'	76° 18.0'		3000	40	13.3
36	19° 49.6'	75° 36.8'		4600	38	8.5
37	18° 24.0'	75° 11.0'		1280	35	27.4
38	17° 33.9'	73° 22.1'		1720	14	8.1
39	17° 31.5'	72° 31.6'		1560	47	30.1
40	17° 46.0'	70° 05.0'		2000	58	29.0
41	19° 10.9'	67° 06.0'		6320	40	6.3
42	20° 32.5'	64° 52.0'		3560	25	7.0
43	19° 57.1'	65° 07.5'		2600	36	13.8
44	19° 41.0'	66° 03.0'		1720	36	20.9

